COMPUTERS & EDUCATION

Editors: David F. Rogers
Michael R. Kibby

Author Index and Volume Contents

VOLUME 18

1992

Pergamon Press
Oxford · New York
Seoul · Tokyo

computers and education

An International Journal

EDITORS

Professor DAVID F. ROGERS
Aerospace Engineering Department
U.S. Naval Academy
Annapolis
MD 21402, U.S.A.

Dr MICHAEL R. KIBBY
Centre for Academic Practice
University of Strathclyde
Glasgow G1 1QE
Scotland

EDITORIAL ADVISORY BOARD

A. A. Pouring, U.S.A. (Founder Editor)
P. R. Smith, U.K. (Founder Editor)

M. H. Aston, U.K.
N. Gardner, U.K.
M. Gigante, Australia
R. D. Harding, U.K.
J. R. Hartley, U.K.
A. Hawkins, The Netherlands
T. Hinton, U.K.
T. Kurtz, U.S.A.
J. Liebowitz, U.S.A.
J. Matthews, U.K.
T. Plomp, The Netherlands
T. Sakamoto, Japan
J. Schoenmaker, The Netherlands
W. L. Staats, U.S.A.
D. J. Stevens, U.S.A.
P. Thorne, Australia

Book Review Editor: Professor David Hawkridge, Institute of Educational Technology, The Open University, Milton Keynes MK7 6AA, England

Publishing Office:
Pergamon Press Ltd, Pergamon House, Bampfylde Street, Exeter EX1 2AH, U.K.
[Tel. Exeter (0392) 51558; Fax (0392) 425370]

Subscription and Advertising Offices:
North America: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.
Rest of the World: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K.
[Tel. Oxford (0865) 794141]

Subscription Rates:
Annual institutional subscription rate (1992): £345.00 (US$625.00). Two-year institutional rate (1992/93): £655.50 (US$1187.50). Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice. Subscription rates for Japan are available on request.

Back Issues:
Back issues of all previously published volumes, in both hard copy and on microform are available direct from Pergamon Press offices.

Published 8 issues/annum (2 volumes) in January, February, April, May, July, August, October, November

Copyright © 1992 Pergamon Press Ltd

Application to mail at second class postage rate is pending at RAHWAY, NJ. Postmaster send address corrections to *Computers & Education*, c/o Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

CONTENTS

Number 1–3

COMPUTER ASSISTED LEARNING
Selected Contributions from the CAL91 Symposium

	ix	Preface
	x	International Programme Committee
Joan Bliss, Jon Ogborn, Richard Boohan, Jonathan Briggs, Tim Brosnan, Derek Brough, Harvey Mellar, Rob Miller, Caroline Nash, Cathy Rodgers and Babis Sakonidis	1	Reasoning supported by computational tools
Don Clark	11	Object-lessons from self-explanatory objects
Gary McI. Boyd and P. David Mitchell	23	How can intelligent CAL better adapt to learners?
Wouter R. van Joolingen and Ton de Jong	29	Modelling domain knowledge for Intelligent Simulation Learning Environments
Julita Vassileva	39	Pedagogical decisions within an ITS-shell
Frank J. Papa, Jon I. Young, Gerald Knezek and Robert J. Bourdage	45	A differential diagnostic skills assessment and tutorial tool
Alfredo Fernández-Valmayor and Carmen Fernández Chamizo	51	Educational and research utilization of a dynamic knowledge base
Monique Grandbastien	63	Intelligent tutoring systems on scientific subjects: are prototypes ready for broad experimentation?
R. J. Hendley and N. Jurascheck	71	CASCADE: introducing AI into CBT
Chris Bowerman	77	Writing and the computer: an intelligent tutoring systems solution
P. L. Brusilovsky and T. B. Gorskaya-Belova	85	An environment for physical geography teaching
Mary Webb	89	Learning by building rule-based models
Noel Williams	101	The Artificial Intelligence Applications to Learning Programme

M. D. Leiblum	109	Implementing CAL at a university
C. E. Beevers, M. G. Foster, G. R. McGuire and J. H. Renshaw	119	Some problems of mathematical CAL
Tom Boyle and Sue Margetts	127	The CORE guided discovery approach to acquiring programming skills
Neil Pitcher	135	A computer-based laboratory course in mathematical sciences
Howard Tanner	143	Developing the use of IT within mathematics through action research
J. Dale Burnett	149	Who's in the driver's seat? Technology, the Arts and Education
Nick Hammond, Nigel Gardner, Simon Heath, Michael Kibby, Terry Mayes, Ray McAleese, Christine Mullings and Annie Trapp	155	Blocks to the effective use of information technology in higher education
Douglas Siviter and Keith Brown	163	Hypercourseware
G. A. Hutchings, W. Hall, J. Briggs, N. V. Hammond, M. R. Kibby, C. McKnight and D. Riley	171	Authoring and evaluation of hypermedia for education
Megan Quentin-Baxter and David Dewhurst	179	A method for evaluating the efficiency of presenting information in a hypermedia environment
Ann Jones, Gill Kirkup, Adrian Kirkwood and Robin Mason	183	Providing computing for distance learners: a strategy for home use
Steve Kennewell	195	Computing for the Terrified
C. Bloor, D. A. S. Curran, J. Fowler, K. Manktelow, W. Middleton and A. O. Moscardini	201	A hypertext system for teaching employment-related language to hearing-impaired school leavers
Julia Blackstock and Larry Miller	209	The impact of new information technology on young children's symbol-weaving efforts
Stefano Pozzi, Celia Hoyles and Lulu Healy	223	Towards a methodology for analysing collaboration and learning in computer-based groupwork
Susan E. Sanders	231	Developing computer use during a Primary P.G.C.E.

Rena Upitis 243 Technology and music: an intertwining dance

Murray Saunders and Joyce Bisset 251 The alternative conference: an evaluation of CAL91

Number 4

v Editorial

vii Editorial

Zhengxin Chen 259 A conceptual framework for expert system description

Zhengxin Chen 267 Knowledge graphs for information systems

Rosa Maria Bottino 273 Comparing different approaches to programming from an educational viewpoint

G. D. Moss 283 Comparing awareness and use of content-free software in comprehensive schools

S. M. Selim 293 Computer algorithm for constructing the departmental timetable

Cynthia Winnans and Deborah Sardo Brown 301 Some factors affecting elementary teachers' use of the computer

Esther F. Levary 311 Computer activities and the development of transitions in student writing

R. Maity, S. Bhattacharya, A. Ghosh and T. K. Ghoshal 319 Teaching non-hierarchical classification

Book Reviews 329